



30 September 2009

Science, Technology and Education News from Taiwan  
Number 15 — September 2009

Introduction

- Over the next several years, the government-backed Industrial **Technology Research Institute (ITRI) in Hsinchu will focus on the development of green energy and biotechnologies**, with the two sectors absorbing half of ITRI's budget. In the area of green energy, efforts will be devoted to LED, photovoltaic, wind power (in which ITRI is seeking technical cooperation with China) as well as energy conservation, biotech energy and smart power grids. In the biotech field, ITRI will initially concentrate on medical equipment, especially technology-intensive custom products for the handicapped and the aged. Another prominent item is gene-sequencing technology, with the aim of providing gene sequencing to individuals at a cost of less than US\$ 1000 each. ITRI will continue to develop pioneering IT technologies. It is cooperating with IBM in the establishment of a cloud computing technology center. It will also join the "smart-life technology utilization plan", dubbed the "i236 plan", which calls for the development of 20 daily-life technology application services by 2012 in smart towns and I-parks on an experimental basis. The technologies will be applied mainly in six major areas-comfort and convenience, agriculture and leisure, safety and disaster prevention, medical care, energy conservation, and smart expediency-via broadband, digital TT, and sensing networks. ITRI has a workforce of 6'000.
- **France and Taiwan** have signed 11 cooperative agreements covering 56 programs and Taiwan is also conducting 165 cooperative research projects with various French universities, according to Taiwan's rep office in Paris. Besides the USA, France is now Taiwan's most important scientific research partner, it said. The National Science Council said cooperation between the two countries is now focused on medicine, agriculture and life science. In the next stage, cooperation will be extended to environmental sciences, incl mathematics, biology, chemistry, physics and materials science. Bilateral cooperation has entered a thematic research collaboration stage and will move toward joint operation of research laboratories, it said.
- The **National Science Council (NSC)** has put aside NT\$ 30 bio. for a **national energy research project**. To be spent over a period of five years, the main budget will be appropriated in four areas: conserving energy and reducing carbon dioxide emissions, developing new energy sources, energy use and development strategies, and personnel training and education. Studies will be devoted to solar energy, wind power, bio-energy and 22 other alternative sources of energy. Approx. NT\$ 11.5 bio. will be allocated for conserving energy and reducing emissions, while about NT\$ 15 bio. will be allocated to developing new energy technology. The NSC has also budgeted NT\$ 1.22 bio. for planning energy use and development strategies and NT\$ 2.05 bio. for personnel training and education.

Contents

1.	Research institutes to develop electric vehicle	2
2.	Molecular biologists win award for glial cell research	2
3.	Taiwan develops world's leading personal Internet device	2
4.	ITRI to Spearhead Green Energy and Biotech Research	2
5.	NTU researchers create shopping comparison tool	3
6.	ITRI earns Wall Street Journal gong	3
7.	Convenient biochip to allow accurate semen analysis at home	4
8.	Taiwan to expand technological cooperation with Philippines	4



### 1. Research institutes to develop electric vehicle

(The China Post, 02 09 2009)

Two of the island's premier research institutes will work together to develop electric vehicles (EVs): the Metal Industries Research and Development Center and the Chung-Shan Institute of Science and Technology. Both institutes have already teamed up to make various products including bathroom equipment, lighting materials, and shock-absorbing devices for vehicles moving on rails.

Full article:

<http://www.chinapost.com.tw/taiwan/t-business/2009/09/02/223057/Research-institutes.htm>

### 2. Molecular biologists win award for glial cell research

(Central News Agency, 02 09 2009)

A research team, composed of Taiwanese and French academics, has won the 2009 Taiwan-France Science and Technology Award for their study on how to prevent proliferation of glial cells, or how to balance brain cell numbers, the National Science Council (NSC) announced.

The Taiwan researchers, headed by Chien Cheng-Ting, a research fellow and professor with Academia Sinica's Institute of Molecular Biology, were responsible for the study on Gcm (glial cell missing) protein degradation, while the French researchers, headed by Angela Giangrande, focused on studying glial progenitors. Chien said cancer incidence mainly results from abnormal proliferation of cancerous cells.

"Our research aims to study how to prevent abnormal proliferation of glial cells, a development that could lead to the growth of glioblastoma, a type of tumor cell," Chien said.

Therefore, he added, it is very important to precisely control glial cell movement and numbers in order to understand the correlation between glial cell division and proliferation.

Through cooperation with France in this field, Chien said, Taiwan will be able to cooperate with European Union academic institutions in cancer-related research in the future.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200909020035&pType1=HH&pType0=xJDLNHH&pTypeSel=0>

Related article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/09/04/2003452719>

### 3. Taiwan develops world's leading personal Internet device

(Central News Agency, 04 09 2009)

Taiwan's Industrial Technology Research Institute (ITRI) has successfully developed a world-leading personal Internet device (PID) that integrates the latest wireless and mobile communications technologies.

The device, unveiled by the institute, contains a chip embedded with a Worldwide Interoperability for Microwave Access (WiMAX) receiver and is equipped with an Android mobile operating system.

Thanks to the high bandwidth provided by WiMAX, the newly developed PID allows data transmission at a rate that is five times faster than 3G technology, and its definition is two to three times higher than that of DVD, according to Wu Cheng-wen, director of the ITRI's SoC Technology Center.

The applications of the device can include real-time reception of disaster information, mobile satellite news gathering, multimedia online entertainment, and Internet video phone communication, Wu said.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200909040022&pType1=ED&pType0=xEMST&pTypeSel=0>

### 4. ITRI to Spearhead Green Energy and Biotech Research

(Taiwan Economic News, 05 09 2009)

Over the next several years, the government-backed Industrial Technology Research Institute (ITRI) will focus on the development of green energy and biotechnologies with the aim of easing the way into these high-tech sectors by local industries, says ITRI president Johnsee Lee.



In the area of green energy, efforts will be devoted to LEDs (light-emitting diodes) and photovoltaic and wind power (in which ITRI is seeking technological cooperation with mainland China), as well as energy conservation, biotech energy, and smart power grids.

In the biotech field, ITRI will initially concentrate on medical equipment, especially technology-intensive custom products for the handicapped and the aged, thus meeting the needs of the aging society. Another prominent item in this field is gene-sequencing technology, with the aim of providing gene sequencing to individuals at a cost of less than US\$1,000 each. The results of this effort could emerge in less than six months, Lee believes.

At the same time, ITRI will continue to develop pioneering IT (information technology) technologies in order to carry on with the rapid development of Taiwan's IT industry.

Full article:

[http://cens.com/cens/html/en/news/news\\_inner\\_29105.html](http://cens.com/cens/html/en/news/news_inner_29105.html)

## 5. NTU researchers create shopping comparison tool

(Taipei Times, 05 09 2009)

A local research team has recently developed a mobile image query using a system that can help shoppers learn more about prices for similar products.

"The new system allows a mobile phone user to get information about the appearances, styles and prices of items similar to the product a consumer plans to buy," said Winston Hsu, an associate professor at National Taiwan University's (NTU) Graduate Institute of Computer Science and Information Engineering, who led the research team that developed the system.

Hsu said the shopper needs only to photograph the product with a mobile phone to get related information almost instantly.

Hsu said the system has been patented and that he is discussing projects with local system developers and online shopping companies. The system will also be used to identify local landmarks, he said.

Full article:

<http://www.taipeitimes.com/News/taiwan/archives/2009/09/05/2003452837>

Related article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200908310022&pType1=ST&pType0=xEMST&pTypeSel=0>

## 6. ITRI earns Wall Street Journal gong

(Economic Daily News, 15 09 2009)

The paper-thin flexible loudspeaker fleXpeaker developed by the Hsinchu-based Industrial Technology Research Institute is the winner of this year's The Wall Street Journal 2009 Technology Innovation Awards in the consumer electronics category.

This is the first time that the research institute, standing out from nearly 500 entries, has beaten such technological heavyweights as Hewlett-Packard Co. and Motorola Inc. to win the award. It is also the first time that Taiwan has received recognition for its achievement in technological research and development from "The Wall Street Journal." According to the journal, the ITRI has successfully developed a method to create arrays of tiny speakers that can be combined to produce high-fidelity speaker systems of almost any size--all while maintaining the quality of traditional speakers.

Because of its light weight and low power consumption, the device can be used in handsets, automobile sound systems and giant bulletin boards, or to deliver public service announcements in train stations and advertising messages in shopping centers.

The ITRI began working on the fleXpeaker as early as 2006, and has submitted applications for 46 patents worldwide. The device, which is currently employed in some car stereo systems, can also be used as earphones or to reduce noise in an industrial setting.

ITRI is seeking to license the technology or create a new company to commercialize the invention. (SFC-HZW)

Full article:

<http://www.taiwantoday.tw/ct.asp?xitem=63712&CtNode=415>



## 7. Convenient biochip to allow accurate semen analysis at home

(Economic Daily News, 16 09 2009)

National Taiwan University unveiled the development of a convenient biochip that will allow users to conduct accurate semen analysis at home to check for male infertility.

According to Hu Wen-tsung, a professor at NTU's Institute of Applied Mechanics, although five different types of semen test kits for household use have been invented around the world, most of them can only measure sperm concentration, and some require the use of a microscope for the analysis.

The new invention, created through the use of microfluidic technology, however, is easier to use and produces more accurate results, Hu said.

To conduct the test, users are required to let fresh semen sit for 30 minutes before dropping the specimen onto the biochip, Hu said.

The method can precisely measure the sperm count per milliliter of semen, as well as the mobility of the sperm, without the need for a microscope or a hospital visit, he said.

With the research team having already spent five years completing the development of the sperm-counting technology alone, the device's prototype is expected to be produced next year, paving the way for its market debut in December 2011, Hu went on, adding that he envisages the biochip being sold in pharmacies and convenience stores to make the product as easily accessible to consumers as pregnancy test kits.

Full article:

<http://english.cna.com.tw/ReadNews/Detail.aspx?pSearchDate=&pNewsID=200909160020&pType1=JD&pType0=xJDLNHH&pTypeSel=0>

## 8. Taiwan to expand technological cooperation with Philippines

(Central News Agency, 17 09 2009)

Taiwan and the Philippines are expected to engage in a series of cooperation projects to enhance bilateral technological exchanges, especially in the area of weather observation, according to a plan mapped out recently by the two sides. The plan was finalized at the second technology ministers' meeting between the two countries held in Manila. Under the plan, Taiwan will assist the Philippines with research in areas such as bio-agriculture and coral reef inspection, strengthen academic and science exchanges, and increase talent training between the two sides. In terms of weather observation, Taiwan will help the Philippines set up automatic weather stations and acquire weather radar or global positioning systems (GPS). The two countries will also share typhoon and precipitation data. In particular, a weather radar system or GPS will be installed in the Philippines' northernmost island groups of Batanes. These projects will mark a step forward in bilateral cooperation in weather observation, after Taiwan donated US\$170,000 to the Philippines in 2007 to renovate a weather station located in a mountainous area in the northern Philippines. The sharing of typhoon data will help Taiwan more accurately predict the movement of storms and take proper precautions.

Full article:

[http://www.etaiwannews.com/etn/news\\_content.php?id=1059500&lang=eng\\_news&cate\\_img=49.jpg&cate\\_rss=news\\_Society\\_TAIWAN](http://www.etaiwannews.com/etn/news_content.php?id=1059500&lang=eng_news&cate_img=49.jpg&cate_rss=news_Society_TAIWAN)